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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,684	11/17/2003	Hidefumi Yoshida	2803.66230	5374

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EXAMINER

CHEN, WEN YING PATTY

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/714,684	Applicant(s) YOSHIDA ET AL.	
	Examiner W. Patty Chen	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/079,008.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/13/06, 9/01/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Jun. 5, 2006 has been entered.

Response to Amendment

Applicant's Amendments filed Jun. 5, 2006 and Jul. 17, 2006 has been received and entered. Claims 14-27 are newly added per the Amendments filed. Therefore, claims 12-27 are now pending in the current application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 2871

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12-14, 20-21 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clerc et al. (EP 0538796) in view of Takatori et al. (US 6504592).

With respect to claims 12 and 13 (Amended): Clerc et al. disclose in Figure 1 a liquid crystal display device comprising:

a liquid crystal cell comprising a pair of substrates (elements 3 and 5), a liquid crystal layer (element 4) arranged between the pair of substrates, and a pair of electrodes for applying a voltage across the liquid crystal layer (it is inherent that a pair of electrodes are present in order to produce electric field for activating the display device);

first and second polarizers (elements 1 and 7) arranged on either side of the liquid crystal cell; a first retardation plate (element 2) arranged between the liquid crystal cell and the first polarizer; and

a second retardation plate (elements 6 and 9) arranged between the liquid crystal cell and the second polarizer; each of the first and second retardation plates having an optical axis in a plane parallel to the surfaces of the substrates and a retardation of substantially $\lambda/4$ (Column 7, lines 36-38), the optical axis of the first retardation plate being perpendicular to the optical axis of the second retardation plate (Column 6, lines 44-55);

the first and second polarizers having polarizing axes at an angle of 45° with respect to the optical axes of the first and second retardation plates, and at an angle of 90° with respect to one another (as shown in the figure); and

the liquid crystal of the liquid crystal cell being of a vertical alignment type (Column 6, line 37).

Clerc et al. fail to disclose that a resin of a polymer network being formed in the liquid crystal layer of the liquid crystal cell such that the pretilt of liquid crystal molecules and an inclination direction of the liquid crystal molecules upon application of voltage being regulated by the polymer network and that at least one of the pair of electrodes being one of an electrode on which a linear structure of a bent shape is formed and an electrode having a slit of a bent shape.

However, Takatori et al. teach in Column 46 line 46 through Column 47 line 16 of adding a polymer network in the liquid crystal layer so that the pretilt of liquid crystal molecules and an inclination direction of the liquid crystal molecules upon application of voltage being regulated by the polymer network and Takatori et al. also disclose in Figures 6 and 8 a liquid crystal display wherein at least one of the pair of electrodes being an electrode on which a linear structure (elements 1 and 23) of a bent shape is formed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Clerc et al. wherein a polymer network is added to the liquid crystal layer as taught by Takatori et al., since Takatori et al. teach that by adding a polymer network to the liquid crystal layer helps to realize a more superior division of alignments and to secure the initial alignment of the liquid crystal molecules (Column 46, lines 46-50 and Column 47, lines 11-16) and wherein at least one of the pair of electrodes being an electrode on which a linear structure of a bent shape is formed as taught by Takatori et al., since Takatori et al. teach that the linear structures helps in division of each of the pixels into domains thus results in improved viewing angle of the display device (Column 27, lines 38-42 and Column 28, lines 53-61).

As to claims 14 and 21 (New): Takatori et al. further disclose in Figure 8 that four domains, in which directions of alignment of liquid crystal molecule are different from each other, are formed in a pixel.

With respect to claims 12 and 13 (Amended): Clerc et al. disclose in Figure 1 a liquid crystal display device comprising:

a liquid crystal cell comprising a pair of substrates (elements 3 and 5), a liquid crystal layer (element 4) arranged between the pair of substrates, and a pair of electrodes for applying a voltage across the liquid crystal layer (it is inherent that a pair of electrodes are present in order to produce electric field for activating the display device);

first and second polarizers (elements 1 and 7) arranged on either side of the liquid crystal cell; a first retardation plate (element 2) arranged between the liquid crystal cell and the first polarizer; and

a second retardation plate (elements 6 and 9) arranged between the liquid crystal cell and the second polarizer; each of the first and second retardation plates having an optical axis in a plane parallel to the surfaces of the substrates and a retardation of substantially $\lambda/4$ (Column 7, lines 36-38), the optical axis of the first retardation plate being perpendicular to the optical axis of the second retardation plate (Column 6, lines 44-55);

the first and second polarizers having polarizing axes at an angle of 45° with respect to the optical axes of the first and second retardation plates, and at an angle of 90° with respect to one another (as shown in the figure); and

the liquid crystal of the liquid crystal cell being of a vertical alignment type (Column 6, line 37).

Clerc et al. fail to disclose that a resin of a polymer network being formed in the liquid crystal layer of the liquid crystal cell such that the pretilt of liquid crystal molecules and an inclination direction of the liquid crystal molecules upon application of voltage being regulated by the polymer network and that at least one of the pair of electrodes being one of an electrode on which a linear structure of a bent shape is formed and an electrode having a slit of a bent shape.

However, Takatori et al. teach in Column 46 line 46 through Column 47 line 16 of adding a polymer network in the liquid crystal layer so that the pretilt of liquid crystal molecules and an inclination direction of the liquid crystal molecules upon application of voltage being regulated by the polymer network and Takatori et al. also disclose in Figure 44 a liquid crystal display wherein at least one of the pair of electrodes being an electrode on which a slit (element 517) of a bent shape is formed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Clerc et al. wherein a polymer network is added to the liquid crystal layer as taught by Takatori et al., since Takatori et al. teach that by adding a polymer network to the liquid crystal layer helps to realize a more superior division of alignments and to secure the initial alignment of the liquid crystal molecules (Column 46, lines 46-50 and Column 47, lines 11-16) and wherein at least one of the pair of electrodes being an electrode on which a slit of a bent shape is formed as taught by Takatori et al., since Takatori et al. teach that the slit helps in division of each of the pixels into domains thus results in improved viewing angle characteristics of the display device (Column 8, lines 38-43).

As to claims 20 and 27 (New): Takatori et al. further disclose in Figure 44 and Column 8 lines 34-36 that since the polarizing axes of the polarizers are at right angles with each other, thus, having the slits formed in shapes especially as shown in Figure 44C, thus, results in that the polarizing axes of the polarizers at an angle of 45 degrees to directors of liquid crystal molecules in the liquid crystal layer when voltage is applied to the liquid crystal layer.

Claims 15-19 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clerc et al. (EP 0538796) and Takatori et al. (US 6504592) in view of Hamada et al. (US 5028122).

With respect to claims 15 and 22 (New): Clerc et al. and Takatori et al. disclose all of the limitations set forth in the previous claims, and Takatori et al. further disclose in Figure 8 that the liquid crystal display device further comprises a gate bus line (element 27), a data bus line (element 28), a thin film transistor (Column 22, lines 53-55), and a pixel electrode (element 20)

Art Unit: 2871

formed on one of the pair of substrates, and a color filter and a common electrode (Column 6, lines 4-17) are formed on another of the pair of substrates, so that driving signal can be supplied to each of the switching devices for activating each of the pixels.

Clerc et al. and Takatori et al. fail to disclose that a subsidiary capacity electrode is formed on the active matrix substrate.

However, Hamada et al. disclose in Figure 3a that a subsidiary capacity electrode (element 112) being formed on the active matrix substrate.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to construct a liquid crystal display device as taught by Clerc et al. and Takatori et al. wherein the active matrix substrate further comprises a subsidiary capacity electrode as taught by Hamada et al., since Hamada et al. teach that by having the subsidiary capacity electrode helps to improve picture element potential-retaining characteristics (Column 1, lines 30-36).

As to claims 16-17 and 23-24 (New): Takatori et al. further disclose in Column 5 lines 38-44 that slits are formed in the pixel electrode so as to achieve multi-domain structure, thus, it is obvious that linear structures can be formed instead of the slits, since essentially the same effects result.

As to claims 18 and 25 (New): Takatori et al. further disclose in Figure 6 that the linear structure (elements 1, 23) is formed on the common electrode (element 19).

As to claims 19 and 26 (New): Takatori et al. further disclose in Figure 8 that the linear structure (element 1) is provided at a position corresponding to the gate bus line (element 27).

Response to Arguments

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Patty Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W. Patty Chen
Examiner
Art Unit 2871

WPC 10/05/06


ANDREW SCHECHTER
PRIMARY EXAMINER